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KAFAROV, V.V.; GORDIYEVSKIY, L.A.

Flow of the extractive distillation process. Zhur.prikl.khim. 29
no.5:713-723 My '56. (MLRA 9:8)
(Distillation)

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CIA-RDP86-00513R000619910004-1

Separation of controls required by the setting of all

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KAFAROV, V.V.

"Foam processing of gases and liquids." M.E. Pozin, and others.
Reviewed by V.V. Kafarov. Zhur.prikl.khim. 29 no.5:806-807
My '56. (MLRA 9:8)
(Chemical engineering) (Foam)

"APPROVED FOR RELEASE: 08/10/2001

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CIA-RDP86-00513R000619910004-1"

KOGAN, Vladimir Borisovich; FRIIDMAN, Viktor Mikhaylovich; KAFAROV, V. V.
doktor tekhn.nauk, prof., redaktor; TOMARCHENKO, S.L., redaktor;
LEVIN, S.S., tekhnicheskij redaktor; ERLIKH, Ye.Ya., tekhnicheskij
redaktor.

[Manual on equilibria between fluids and vapors in binary and
multicomponent systems] Spravochnik po ravnovesiiu mezhdu
zhidkost'iu i parom v binarnykh i mnogokomponentnykh sistemakh.
Pod red. V.V.Kafarova. Leningrad, Gos.nauchno-tekhn.izd-vo khim.
lit-ry, 1957. 497 p. (MIRA 10:11)

(Systems (Chemistry)) (Chemical equilibrium)

"APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000619910004-1

APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000619910004-1"

KAFAROV, V.V., professor.

Present stage of distillation technique. Khim. nauka i prom. 2 no.1:
81-91 '57. (MLRA 10:4)

(Distillation apparatus)

KAFAROV, V.V.; ZHUKOVSKAYA, S.A.

Studying the operation of jet extractors used for penicillin extraction.
Med. prem. 11 no.5:23-32 My '57. (MIRA 10:6)
(EXTRACTION APPARATUS) (PENICILLIN)

KASATKIN, A.G.; KAPAROV, V.V.; SLOBODYANIK, I.P.

Study of the chemical sorption process of CO_2 by NaOH and KOH
solutions in a packed column. Trudy MKHTI no. 24:389-404 '57.
(Sorption) (Carbon dioxide) (MIRA 11:6)

SOV/124-58-8-8992

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 97 (USSR)

AUTHORS: Kasatkin, A.G., Kafarov, V.V., Panfilov, M.N.

TITLE: Investigating the Mixing Process in a Gas-liquid System When the Mixing is Done With Mechanical Mixers (Issledovaniye protsessa peremeshivaniya mekhanicheskimi meshalkami v sisteme gaz-zhidkost')

PERIODICAL: Tr. Mosk. khim.-tekhn. in-ta im. D.I. Mendeleyeva, 1957, Nr 24, pp 413-427

ABSTRACT: An analog study is made of the operation of mechanical mixers, and 14 different types of mixer are subjected to tests. The power characteristic of the mixers is represented as a relationship between two ratios: 1) That of the energy required for mixing in the case of the gas-liquid system (N_g) to the energy required for mixing in the case of the plain liquid (N_o) without the gas, and 2) the ratio V_g/nd^3 (wherein V_g is the quantity of gas fed into the mixer and nd^3 is the mixer's mixture output per unit volume. The authors evolve empirical equations for calculation of the energy required for mixing in

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SOV/124-58-8-8992

Investigating the Mixing Process in a Gas-liquid System (cont.)

the case of water-air systems and systems of similar types. For the mixers tested, a determination is made of the limiting values of the V_g/nd^3 ratio, beyond which values the mixers start to choke. An oxygen absorption process is used to simulate the diffusion phenomena associated with the mixing action in a gas-liquid system. The authors propose a method for evaluating the efficiency of mixers over a broad range of operating conditions, and a comparative evaluation is made of the efficiency of the mixers tested. Bibliography: 14 references.

Ye.M. Minskiy

Card 2/2

KAFAROV, V.V.

Calculations of batch fractionating columns used for separating
constant-composition distillate. Trudy MKHTI no.24:428-431 '57.
(Plate towers) (MIRA 11:6)

KAFAROV, V.V.; TROFIMOV, V.I.

Performance analysis and design of packed absorption columns for
conditions of developed free turbulence. Zhur.prikl.khim. 30 no.2:
211-221 F '57.

(Plate towers)

(MIRA 10:5)

KAFAROV, V.V.; GORDITEVSKIY, L.A.

On I.N. TSinaris' remark on the paper entitled "Basic principles of selecting a solvent for the separation of azeotropic systems by means of extractive distillation." Zhur.prikl.khim. 30 no.3:497-498 Mr '57.
(MLRA 10:5)

(Azeotropy) (Distillation, Fractional)

"APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000619910004-1

Ka-f-a-g-e-v V. V.

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KHAROV, V. V.

...-... systems were calculated by the equation

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CIA-RDP86-00513R000619910004-1

APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000619910004-1"

A New Method of Analysis and Application of Similitude
Principles to Diffusion Processes

20-4-35/52

from a turbulence arising at the firm boundary of a wall.
b) A fixed phase limit, by its nature different from a firm surface, exists under limited conditions. c) Under certain hydrodynamic regimens and under conditions of a developed free turbulence, the fixed dividing limit is continuously changed and renewed. With that, the energy developed in the currents exceeds the surface tension, and the gas or steam vortices penetrate into the fluid stirred up. The phases continuously revert. d) In 2phase currents there are no films at all, and the substance is passed on by the molecular and by the turbulent diffusion within the range of each single phase. e) In a developed free turbulence the turbulent diffusion is stronger than the molecular diffusion. The influence of individual diffusion qualities decreases. This offers many new opportunities for the application of similitude principles to diffusion processes. f) The equations mentioned above are confirmed by experimental results with rectification, adsorption and extraction columns and so on (references 1-4). g) In accordance with the theses explained above the diffusion apparatus can be classified as follows: I. Apparatus with a fixed surface of the phase contact: 1) for the barbotage with

Card 2/4

A New Method of Analysis and Application of Similitude
Principles to Diffusion Processes

20-4-35/52

little Pe values, 2) film ("plenochnyye") apparatus, turillen ("turilly"), tsellariuses, and so on. II. Apparatus in which the surface of the phase contact is formed during the movement of the currents: 1) emulsifying attachment columns ("nasadochnyye kolonny"), 2) emulsifying sieve columns, 3) apparatus with mixers under an auto-module regimen, string apparatus. h) The application of similitude principles to diffusion processes and diffusion apparatus is only possible in a regimen of developed free turbulence. This possibility depends on the following conditions: 1) The character of the determinative hydrodynamic characteristics is the same. That accords to the thesis that the individual diffusion characteristics do not influence the mass exchange ("massoobmen") under conditions of a developed free turbulence. 2) As the relation E_r/E_d (these are the coefficients of the turbulent exchange of energy and mass) is constant, it is possible to calculate the delivered mass, that is: the whole apparatus, according to certain hydrodynamic parameters. The regime of the developed free turbulence is most effective, as at maximum speed - and consequently at maximum productivity -

Card 3/4

AUTHOR: Kafarov, V. V. SOV/156-58-1-43/46

TITLE: The Law of Corresponding States as Applied to the Analysis of Diffusion Processes (Printsip sootvetstvennykh sostoyaniy v analize diffuzionnykh protsessov)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 176 - 179 (USSR)

ABSTRACT: It is well known that the law of corresponding states is based on the fact that the phenomenon or process considered which takes place under given conditions is compared with the critical state of the system. This law has been applied in a number of calculations. In his paper the author endeavors to expand the range of application of this law, and to extend it to intensified diffusion processes that occur at great velocities of phase flows. Here, 4 characteristic types of mass exchange are on principle possible (Refs 4,5): 1) Molecular exchange, where the mechanism of mass transfer is determined by molecular diffusion D only; 2) an intermediate exchange, where molecular diffusion D prevails in the transfer mechanism against turbulent diffusion ϵ_g , i. e., $D > \epsilon_g$; 3)

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The Law of Corresponding States as Applied to the
Analysis of Diffusion Processes

SOV/156-58-1-43/46

turbulent exchange, where $\epsilon_g > D$, and 4) exchange under a freely developed turbulence arising in two-phase flows ($\epsilon_g \rightarrow \infty$). There are 3 critical points corresponding to the transitions from one state to the other. Two of them can be used in applying the law to the processes mentioned in the title. The values of their parameters may be considered as corresponding states. However, actually only 1 critical point between the 1st and 2nd types of mass exchange is used, which considerably limits the analysis. The author makes use of several equations (1) - (9) for computing not only processes of physical absorption (Ref 17) but also of chemisorption. There are 1 figure and 18 references, 13 of which are Soviet.

ASSOCIATION: Kafedra protsessov i apparatov Moskovskogo khimiko-tekhnologicheskogo instituta im.D.I.Mendeleyeva (Chair of Processes and Equipment of the Chemical Engineering Institute imeni D.I.Mendeleyev, Moscow)

Card 2/3

The Law of Corresponding States as Applied to the
Analysis of Diffusion Processes

SOV, 156-58-1-43/46

SUBMITTED: September 27, 1957

Card 3/3

KAFAROV, V.V.; MALINOVSKAYA, T.A.

Investigating the effect of cake structure on velocity of industrial filtration. Khim. nauka i prom. 3 no.1:133-134 58. (MIRA 11:3)

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I. Mendeleeva.
(Filters and filtration)

AUTHOR:

Kafarov, V. V.

TITLE:

Generalization of the Equation for the Transfer of Mass (Obobshcheniye uravneniya massoperedachi)

PERIODICAL:

Nauchnyye soobsheniya vuzov, Khimiya i khimicheskaya tekhnologiya 1955, Nr 3, pp. 595-597 (USSR)

ABSTRACT:

A general equation for the transfer of mass was formulated by means of which the analyses in diffusion apparatus can be calculated. At a given hydrodynamic state - laminary, turbulent or freely developed turbulent - the factor for the dynamic state of the surface is calculated.

$$r = \frac{\Delta P_{\text{gas-liq.}} - \Delta P_{\text{gas}}}{\Delta P_{\text{gas}}} = \beta \left(\frac{L}{G} \right)^3 \cdot \left(\frac{f_{\text{gas}}}{f_{\text{liq.}}} \right)^b \cdot \left(\frac{\mu_{\text{liq.}}}{\mu_{\text{gas}}} \right)^c$$

When the hydrodynamic condition is not fixed the equation for the mass transfer is used the following way:

Nu

$\frac{[1 + f] \cdot Pr^n}{Nu} = \varphi(Re)$ n, Pr = constant magnitudes of the gas. There are 12 references, 5 of which are Soviet.

Card 1,2

Generalization of the Equation for the Transfer of Mass SOV/156 -46-3-50/52

ASSOCIATION:

Kafedra professors i apparatov khimicheskoy
tehnologii Moskovskogo khimiko-tekhnologicheskogo insti-
tuta imeni D. I. Mendeleeva (Chair for the Processes and
Apparatus of Chemical Industry at the Moscow Chemical and Tech-
nological Institute imeni D. I. Mendeleev)

SUBMITTED: February 6, 1958

Card 1/2

5(0)

AUTHOR:

Kafarov, V. V., Doctor of Technical
Sciences

SOV/30-58-12-22/46

TITLE:

Brief Communications (Kratkiye soobshcheniya) The 134th Conference
of the American Society of Chemistry (134-ye sobraniye
Amerikanskogo khimicheskogo obshchestva)

PERIODICAL:

Vestnik Akademii nauk SSSR, 1958, ²⁵Nr 12, pp 79 - 80 (USSR)

ABSTRACT:

This conference was held in Chicago from September 7 to 12, 1958 and was attended by about 10,000 persons. In 22 sections about 1500 reports were heard, some of the sections meeting jointly. The individual sections held symposia on chemical genetics, proteins, modern methods of analysis and other subjects. The section of chemical literature discussed the nomenclature of organic compounds. In this connection a draft elaborated by Soviet chemical scientists was approved by part of the American chemists. In recent years, in particular after the Institute of Scientific and Technical Information had been established in the USSR, the interest for an organization of information exchange in the fields of chemistry and chemical technology and of scientific and technical information as a whole has greatly increased. The work

Card 1/3

Brief Communications. The 134th Conference of the
American Society of Chemistry

SOV/30-58-12-22/46

centers in the USSR.

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KAFAROV, V.V.; ZHUKOVSKAYA, S.A.

Main characteristics of the spray extractor action and comparative effectiveness of extractors in general. Zhur.prikl. khim. 31 no.3: 376-386 11r '58. (MIRA 11:4)

(Extraction (Chemistry))

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KAFAROV, V.V.; TROFIMOV, V.I.

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Analysis of diffusion processes based on the degree of free turbulence. Zhur.prikl.khim. 31 no.12:1809-1816 D '58.

(Diffusion)

(MIRA 12:2)

25(5)

AUTHORS:

Kafarov, V. V., Tikhomirov, V. B.

SC7/64-59-4-17/27

TITLE:

Flow-column for Carrying-out Diffusion Processes (Struynaya kolonna dlya provedeniya diffuzionnykh protsessov)

PERIODICAL:

Khimicheskaya promyshlennost', 1959, Nr 4, pp 62-64 (USSR)

ABSTRACT:

The use of extractors for diffusion processes, which are based upon the principle of a jet pump, is only of advantage with systems which make possible to carry out the extraction process in one or two steps. With multi-step extractions the operation becomes complicated because of the transportation of the liquid from one extractor to the other, and an additional installation of several separators for phase separation after each extractor. Experiments were made concerning the use of ejector units for the separation of the liquids and for the purpose of increasing the final effect when the liquid enters the column (Ref 6). Further investigations led to the construction of a counterflow extractor in which the phases are separated after each step, without using additional devices for the transportation of the liquid, after a previous mixing of the phases (Ref 9). This basically new type of a column may apart from diffusion

Card 1/2

Flow-column for Carrying-out Diffusion Processes

SCV/64-59-4-17/27

processes of the extraction (liquid - liquid) also be used for the rectification (steam - liquid), and for the absorption (gas - liquid). Several columns of this type, which were of different dimensions, were tested with the extraction process. One of these models (Fig 1) has two steps with one ejector each. The column was made of glass. Its dimensions and a description is given. When testing the operation of the column in a test unit (Fig 2), for which purpose mixtures having a difference in the specific weight of the phases of from 0.1 - 0.4 g/cm³ were used, it was shown that the required phase separation was obtained with a height of the column segments of $h = 600-800$ mm. The values of the "height of the equivalent theoretical bottoms" obtained with the flow-column were almost 4 times lower than those holding for attachment columns. There are 2 figures and 9 references, 6 of which are Soviet.

Card 2/2

SLOBODYANIK, I.P.; KASATKIN, A.G.; KAPAROV, V.V.

Calculation of packed columns under conditions of chemisorption.
Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.6:956-961 '59.

(MIRA 13:4)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I.
Mendeleeva. Kafedra protsessov i apparatov.
(Packed towers)

9(0)

SC7/63-4-1-19/31

AUTHOR: Kafarov, V.V., Professor

TITLE: At the 134th Congress of the American Chemical Society (Na 134-m sobranii Amerikanskogo khimicheskogo obshchestva)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 1, pp 122-124 (USSR)

ABSTRACT: The American Chemical Society convened a conference on September 7-12, 1958, in Chicago. It was attended by 11,000 chemists.

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307/61 4-6-36/37

AUTHOR: Kařarov, V. V. (Professor)

TITLE: Letter to the Editor Concerning the Optimum Operating Conditions of a Packed Column

PERIODICAL: Khimicheskaya nauka i promyshlennost . 1959, Vol 4, Nr 6, p 813 (USSR)

ABSTRACT: This is a criticism of an article (this periodical, Vol 3, Nr 6, 1958) by Akopyan, L. A., Planovskiy, A. N., and Kasatkin, A. G. The present author feels that the term "optimum operating conditions" should have been more clearly defined, i.e., whether "optimum" refers to yield, separation, hydraulic resistance, etc. Also, the equation derived for mass transfer seems not to take the viscosity of the liquid into account and seems applicable only to the gaseous phase. There are 13 references, 8 Soviet, 2 German, 3 U.S. The U.S. references are: A. J. Teller, Chem. Eng., 61, Nr 9, 188 (1954); A. J. Teller, Chem. Eng. Progr., 50, 65 (1954); M. G. Molstad, L. F. Parsley, Chem. Eng. Progr., 46, 20 (1950).

Card 1/1

5(4)

SOV/BO-32-4-14/47

AUTHORS: Kafarov, V.V., Babanov, B.M.

TITLE: The Surface of the Phase Contact of Mutually Insoluble Liquids in the Process of Stirring by Mechanical Stirrers (Poverkhnost' fazovogo kontakta vzaimnonerastvorimyykh zhidkostey v protsesse peremeshivaniya mekhanicheskimi meshalkami)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4: pp 789-796 (USSR)

ABSTRACT: Mutually insoluble liquids are stirred to obtain emulsions, which is a process widely used in industry [Ref 1]. The authors carried out an investigation to determine the surface of the phase contact, which is formed during the stirring by mechanical stirrers. A specially designed by the authors [Ref 2] sediment-meter was applied for measuring the degree of dispersion and the surface of contact. Experiments on stirring were carried out with four systems of liquids, four types of mechanical stirrers (turbine-type, with vertical vanes, with inclined vanes under 45°, and propeller-type) and in vessels of two different dimensions but geometrically similar shape. The effect of the following factors was determined: 1. The concentration of the dispersed phase; 2. The number of stirrer revolutions; 3. The stirrer diameter; 4. The viscosity; 5. The value of surface tension; 6. The density. The results of measurements are presented in Graphs 2 to 6. They were compared with results obtained by Vermeulen et al. [Ref 3] by the optic-electrical method, and the average deviation of the experimental points in the present study from the Vermeulen straight

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SOV/SC-32-4-14/47

The Surface of the Phase Contact Mutually Insoluble Liquids in the Process of Stirring by Mechanical Stirrers

line was found not to exceed 12% as is shown in Graph 1. The present results are shown in Graph 8 by four straight lines (one for each type of the stirrers) the analytical expression of which has the shape:

$$A \cdot d_m = C \cdot We^{0.5} \cdot Re^{0.1} \cdot \alpha^{0.84}$$

where A is the specific surface of the phase contact in m^2/m^3 ; d_m is the diameter of the stirrer; C is a constant which characterizes the type of the stirrer (its values for the 4 types employed are cited in a table); We is Weber criterion; Re is Reynolds number, and α is a number characterizing the concentration of the dispersed phase. The relationship found

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SOV/80-32-4-14/47

The Surface of the Phase Contact Mutually Insoluble Liquids in the Process
of Stirring by Mechanical Stirrers

can be used for studying the processes of mass transfer.
There are 9 graphs, 1 table and 14 references; 5 of which
are Soviet, and 9 English.

SUBMITTED: December 31, 1957

Card 3/3

KAFAROV, V.V.

International Symposium on Distillation. Khim.prom.
no.4:351 Je '60. (MIRA 13:8)
(Distillation--Congresses)

S/153/60/003/02/30/034
B011/B006

5.1105

AUTHORS: Slobodyanik, I. P., Kasatkin, A. G., Kafarov, V. V.
TITLE: Influence of Hydrodynamic Conditions on Chemosorption in
Checker Columns
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2, pp. 369-374

TEXT: The authors found that the papers published on investigations of chemosorption all refer to special cases, and that the results obtained are therefore not valid for other conditions. The present paper is an investigation of the effect of flow rates of the solution and the gas on the rate of chemosorption. The absorption of CO_2 by NaOH and KOH in a checker column was used as an example. To render a comparison between their data and those of other investigators possible, the authors also evaluated their data basing on the volume coefficients K_v of absorption. Fig. 1 gives a scheme of the experimental apparatus. Experiments were carried out at 17-19°. Fig. 2 shows the dependence of the rate of

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Influence of Hydrodynamic Conditions on
Chemosorption in Checker Columns

3/153/60/003/02/30/034
B011/B006

CO₂ absorption by KOH solutions on the rate of gas flow at a constant rate of flow of the solution $L = 153$ kg/h. The maximum absorption rates with respect to gas (1) and with respect to the solution (2) were calculated by means of the corresponding equations. As is shown in Fig. 2, the absorption rate increases practically linearly with an increase in the gas rate up to the point of beginning emulsification. Thereafter, it increases rapidly until complete emulsification occurs. In order to clarify the influence of the flow rate of the solution on the rate of absorption, the gas rate, the CO₂ content in the gas at its entrance into the column, and the initial concentration of the NaOH- and KOH solutions were maintained constant. The rate of CO₂ absorption by NaOH solutions as a function of the rate of flow of the solution is illustrated in Fig. 3. For a comparison, the results given in Ref. 2 are represented in Fig. 4. As is evident from the diagrams, the rate of CO₂ absorption by NaOH solutions is influenced more strongly by the rate of the solution than by the gas rate (before the occurrence of emulsification). The highest

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Influence of Hydrodynamic Conditions on
Chemosorption in Checker Columns

S/153/60/003/02/30/034
B011/B006

efficiency of the column is therefore attained under conditions of emulsification. Under the same conditions, KOH solutions absorb CO₂ slightly faster than do NaOH solutions. There are 4 figures and 11 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im.
D. I. Mendeleyeva; Kafedra protsessov i apparatov (Moscow
Institute of Chemical Technology imeni D. I. Mendeleyev,
Chair of Processes and Apparatus)

SUBMITTED: September 11, 1958

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IV. Rate of CO₂ Absorption by Films of
NaOH Solutions in Packed Towers

S/153/60/003/004/033/040/XX
B020/B054

is linear; it has, however, a differing character in different sections of the change in velocity of the solution. The authors derive the equations

$$G_A = G_{A.em} (0.18 + 0.43 L/L_{em}) \quad (5)$$

$$\text{at } 0.25 < L/L_{em} < 0.83$$

$$G_A = G_{A.em} (2.63 L/L_{em} - 1.63) \quad (6)$$

$$\text{at } 0.83 < L/L_{em} < 1$$

where L and G are the velocities of the solution and the gas under given conditions without emulsification, L_{em} and G_{em} the velocities of the solution and the gas with emulsification, and G_A and G_{A.em} the absorption rates under given and emulsifying conditions, respectively. The equation for the determination of the absorption rate of CO₂ in NaOH solutions in packed towers under emulsifying conditions was derived in the preceding investigation (Ref.1):

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IV. Rate of CO₂ Absorption by Films of NaOH Solutions in Packed Towers

S/153/60/003/004/033/04C/XX
B020/B054

$G_{A.em} = 0.619 \cdot L_{em} \cdot d_e^{-0.585} H^{0.8} \alpha^{0.9} C_{in}^{1.16}$ (7), where H is the height of the filling body, C_{in} the initial concentration of the NaOH solution, and d_e the equivalent diameter of the filling body. The absorption rate of CO₂ in NaOH solutions in a packed tower under any hydrodynamic conditions can be calculated from equations (5), (6), and (7). To confirm the accuracy of the equations derived, the authors calculated the absorption rate for more than 150 results given in publications (Refs.2,3). Fig.2 compares the calculated results with the experimental ones. Fig.3 compares the experimental values of the absorption rate determined in the gaseous and liquid phases by I. B. Tepe and B. F. Dodge (Ref.2). The method suggested for analyzing the chemisorption processes permits a calculation of chemisorption processes in packed towers over a wide range of process conditions. There are 3 figures and 6 references: 2 Soviet and 4 US.

Card 3/4

VIGDOROV, A. S., KAFAROV, V. V.

Generalized definition of the efficiency coefficient of plates
in rectification columns. Zhur.prkl.khim. 33 no.5:1091-1101 My
'60. (MIRA 13:7)

(Plate towers) (Mass transfer)

S/080/60/033/007/004/020
A003/A001

AUTHOR: Kafarov, V. V.

TITLE: General Type Equations for Mass Transfer Processes

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 7, pp. 1495-1499

TEXT: In the analysis of the kinetics of mass transfer processes two principal problems must be solved: 1) the problem of the surface state of the phase contact and 2) the problem of the transfer mechanism, i. e., the molecular or turbulent type. Several theories pertaining to these problems are discussed. By introducing the concept of a dynamic state factor of two-phase system (Ref. 1) it proved to be possible to obtain generalized equations of mass transfer for various hydrodynamic conditions in the operation of diffusion apparatus and to develop a method for obtaining and processing experimental data. The general form of the mass transfer equations with introduction of the dynamic state factor of a two-phase system is given for the gaseous phase and for the liquid phase. For various hydrodynamic conditions the form of the equations mentioned can be made more precise. Equations are derived for the energy consumption in one-phase flow friction, for a diffusion flow, etc. ✓

Card 1/2

S/080/60/033/007/004/J20
A003/A001

General Type Equations for Mass Transfer Processes

The quantity of the substance transferred is determined by the transfer of the substance in the phase in which it takes place most slowly, i. e., in which the principal resistance is concentrated. Thus, if the gas is easily soluble in the liquid, equation (1) is used, if it is difficultly soluble, equation (2) is employed. In the most uniform distribution of liquid and gas in a two-phase flow, which is attained under the conditions of developed free turbulence in conformity with the structure of the equations (1) and (2), the power exponent n should reach its maximum value, i. e., equal to unity. The analysis of the mechanism of mass transfer in a one-phase flow shows that the analogy between friction, heat- and mass-exchange is possible only in gases. In drop liquids this analogy is not observed. In this case the power exponents of the Reynolds and Prandtl numbers must be determined by experiment. There are 4 references: 2 Soviet, 1 American and 1 English. ✓

SUBMITTED: February 12, 1960

Card 2/2

KAFAROV, V.V.; VIGDOROV, A.S.

Generalized expression for determining the number of transfer
units. Zhur.prikl.khim. 33 no.7:1506-1513 J1 '60.

(MIRA 13:7)

(Mass transfer) (Distillation, Fractional)

KOGAN, Vladimir Borisovich; FRIDMAN, Viktor Mikhaylovich; KAFAROV,
Viktor Vyacheslavovich; SUSHKOVA, T.I., red. izd-va; BLEYKH,
E.Yu., tekhn. red.

[Manual on solubility] Spravochnik po rastvorimosti. Moskva,
Izd-vo Akad. nauk SSSR. Vol.1. [Binary systems] Binarnye siste-
my. Book. 1. 1961. 595 p. (MIRA 15:1)

1. Akademiya nauk SSSR. Institut nauchno-tekhnicheskoy informa-
tsii.

(Solubility)

(Systems (Chemistry))

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processes with a stable amount of liquid. Khim.mash. no.2:6-8
Mr-Ap 61. (MIRA 14:3)

(Plate towers)

ZELINSKIY, Yu.G.; KAFAROV, V.V.

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(Plate towers)

KAFAROV, V.V., doktor tekhn.nauk, prof.; VIGDOROV, A.S., inzh.

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(Plate towers) (Hydraulics)

SHEN FU; KAFAROV, V.V.

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Izv.vys.ucheb.zav.;khim.i khim.tekh. 4 no.3:498-502 '61.
(MIRA 14:10)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni
Mendeleeva, kafedra protsessov i apparatov khimicheskoy tekhnologii.
(Extraction apparatus)

KAFAROV, V.V.; LUK'YANOV, B.G.; MURAV'YEV, V.S.

Hydrodynamic conditions for packed rectification columns. Izv.
vys.ucheb.zav; khim.i khim.tekh. 4 no.5:854-858 '61. (MIRA 14:11)

1. Moskovskiy khimiko-tehnologicheskii institut imeni Mendeleeva,
kafedra protsessov i apparatov khimicheskoy tekhnologii.
(Packed towers)

KAFAROV, V.V.; MURAV'YEV, V.S.; LUK'YANOV, B.G.

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i khim.tekh. 4 no.6:1026-1029 '61. (MIRA 15:3)

1. Moskovskiy khimiko-tekhnologicheskii institut ineni Mendeleeva,
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(Packed towers)

KAFAROV, V.V.; ZELINSKIY, Yu.G.

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1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy
institut imeni S.Ordzhonikidze.
(Plate towers) (Packed towers)

KAFAROV, V.V.; MURAV'YEV, V.S.

Mass transfer in packed absorbers at the phase inversion point.
Zhur. prikl. khim. 34 no.1:214-128 Ja '61. (MIRA 14:1)
(Mass transfer) (Packed towers)

KAFAROV, V.V.; VIGDOROV, A.S.

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64-572 Mr '61. (MIRA 14:5)

(Foam) (Plate towers)

KAFAROV, V.V.

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Zhur. prikl. khim. 34 no.5:1061-1065 My '61. (MIRA 16:8)

(Mass transfer) (Hydrodynamics)

KOGAN, Vladimir Borisovich; FRIDMAN, Viktor Mikhaylovich; KAFAROV,
Viktor Vyacheslavovich; SUSHKOVA, T.I., red. 1zd-va;
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1. Akademiya nauk SSSR. Institut nauchnoy informatsii.
(Solubility) (Systems (Chemistry))

KAFAROV, Viktor Vyacheslavovich. Prinimal uchastiye BOYARINOV, A.I.;
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Zhur.prikl.khim. 35 no.10:2251-2262 0 '62. (MIRA 15:12)
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principles of the theory of the process. Ekstr.; teor., prim., app.
no. 2:339-346 '62. (MIRA 15:9)
(Extraction apparatus)

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Viktor Vyacheslavovich; SUTKOVA, T.I., red.iad-va; GALIGANOVA,
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(Systems (Chemistry)) (Solubility)

REUTSKIY, V.A.; KAFAROV, V.V.

Modeling of the processes of chemisorption in packed columns.

Khim.prom. no.1:52-59 Ja '63.

(MIRA 16:3)

(Adsorption) (Packed towers) (Chemical models)

KAFAROV, V.V., doktor tekhn.nauk, prof.; ALEKSANDROVSKIY, A.A., inzh.

Hydrodynamics of rotary plate apparatus. Khim.mashinostr. no.2:10-14
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(Chemical engineering--Equipment and supplies)

KAFAROV, V.V.; YEREMENKO, V.V.

Conditions for the stability of a process in a semicontinuous reactor. Khim. prom. no.2:125-129 F '63. (MIRA 16:7)

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Interaction energy in two-phase flows in packed columns. Izv.vys.-
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1. Moskovskiy khimiko-tekhnologicheskij institut imeni Mendeleeva,
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KAFAROV, V.V.; ZELINSKIY, Yu.G.

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BIRYUKOV, V.V.; KAFAROV, V.V.; Primali uchastiye: NOSOV, Yu.I.;
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report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12
May 1964.

Kazan' Chemical Technology Inst.

MURAV'YEV, V.S., kand.tekhn.nauk; KAFAROV, V.V., doktor tekhn.nauk

Diagram for the hydrodynamic state of a two-phase system in packed columns. Khim.mashinostr. no.3:17-19 Vy-Je '64.

(MIRA 18:1)

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2672-2676 1964. (MIRA 18:3)

13603-65 EXT(M)/REF(C)/EXP(J) Pg. 2, Fr. 4 AFIC(b)/AFC(C)/ESG(dp) RM
ACCESSION NR.: AP4044444 S/0076/64/004/004/2023/2024

AUTHOR: Biryukov V. V., Kafarov, V. V.

TITLE The use of analog computers for the study of reaction kinetics

Содержание: *Вестник Омского государственного университета*, в 38, по 8 1964-2029

TOPIC TAGS: chemical kinetics, programming, computer techniques analog computers, reaction rates

ABSTRACT Programming for analog computer was studied to solve problems

Card 1/2

L 18603-65

ACCESSION NR AP4044444

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskoy institut im. D. I. Mendeleeva
(Moscow Institute of Chemical Technology)

SUBMITTED: 10Nov63

ENCL. 00

SUB CODE: DP, GC

NO REF SOV: 006

OTHER: 008

Card 2/2

KAFAROV, V.V., doktor tekhn.nauk. In "Vestnik", A.S., 1961, no. 1, p. 18.

Mass exchange in rotary plate equipment. Khim. i nefte. mashinost.
no. 1:16-20 Ja '65. (MIRA 18:3)

SOURCE: Izmeritel'naya tekhnika, no. 2, 1965, 5-8

TOPIC: TACS - equipment, measuring instrument, automatic instrument

Card 1/2

ACCESSION NR. AP5009873

ASSOCIATION none

NO REF SOV: 002

ENC 1

SER CODE: 001

OTHER: 001

Card 2/2

KAFAROV, V.V., prof.; LUTSENKO, V.A.

Use of analog computers for the analysis of standard chemical reactions. Zhur. VKHO 10 no.1:2-11 '65.

(MIRA 18:3)

AKHNAZAROVA, S.I., inzh.; KAFAROV, V.V., doktor tekhn. nauk

Automatic control of the neutralizer used in the production ammonium
nitrate. Mekh. i avtom. proizvod. 19 no.8:25-27 Ag '65.
(MIRA 18:9)

L 16787-66 EWT(m)/EPF(n)-2/EWP(t) IJP(c) JD

ACC NR: AP6002507

(A)

SOURCE CODE: UN/0286/65/000/023/0016/0016

AUTHORS: Akhnazarova, S. L.; Kafarov, V. V.; Ordyan, V. A.; Kalashyan, V. M.

ORG: none

TITLE: A method for automatically regulating the process of neutralizing nitric acid in the production of ammonium niter. Class 12, No. 176572

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 16

TOPIC TAGS: niter, nitrogen compound, ammonium, nitric acid

ABSTRACT: This Author Certificate presents a method for automatically neutralizing nitric acid in the production of ammonium niter. The method involves adjusting pH of the alkali by changing the feeding rate of nitric acid and correcting the concentration of nitric acid. To optimize the process, the pressure of the liquor vapor is also adjusted. 21

SUB CODE: 07/ SUBM DATE: 13Mar65

Card 1/1

UDC: 66.503.51:661.525.3

Analysis of ammonia and ammonium nitrate losses during neutralization in the production of ammonium nitrate. Khim. prem. 41 no.1: 17-18 Ja '65. (USSR 18:3)

KAFAROV, V.V.

Reviews and bibliography. Khim. prom. 41 no. 12:933 D '65
(MIRA 19:1)

BIRUCHOV, V.V.; KAMPOV, V.V.

Mathematical models of vapor-liquid exchangers with variable
vapor pressure. Khim. prom. 42 no.9:696-698 S '65.
(MIRA 18:9)

ACC NR: AP0029018

SOURCE CODE: UR/0413/66/006/014/0021/0021

INVENTOR: Chalykh, S. N.; Kafarov, V. V.; Vigdorov, A. S.; Savont'yanov, N. I.; Gromova, I. I.; Podgorbunskikh, M. T.; Kolesnikov, A. S.; Luferov, V. Ye.

ORG: none

TITLE: Preparation of salts of dithiocarbamic acid derivatives. Class 12, No. 183735. [announced by Scientific Research Institute of Organic Intermediates and Dyestuffs (Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 21

TOPIC TAGS: sodium dithiocarbamate, alkyl dithiocarbamate, dialkyl dithiocarbamate, carbamic acid, organic salt

ABSTRACT: Usually, salts of dithiocarbamic acid derivatives of the general formula:

(where R_1 and R_2 are CH_3 or C_2H_5 ; Me is Na) are obtained by the reaction of carbon disulfide with a solution of an amine in the presence of alkalies. To improve the technological process and to increase the yield and quality of the final product, the process is carried out in dilute solutions of amines with a 5% excess of CS_2 .

Card 1/2

UDC: 547.496.2.07

ACC NR: AP6029018

SOURCE CODE: UR/0413/66/006/014/0021/0021

INVENTOR: Chalykh, S. N.; Kafarov, V. V.; Vigdorov, A. S.; Savost'yanov, N. I.;
Gromova, I. I.; Podgorbunskikh, M. T.; Kolesnikov, A. S.; Luferov, V. Ye.

QRC: none

TITLE: Preparation of salts of dithiocarbamic acid derivatives. Class 12, No. 183735. [announced by Scientific Research Institute of Organic Intermediates and Dyestuffs (Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 21

TOPIC TAGS: sodium dithiocarbamate, alkyl dithiocarbamate, dialkyl dithiocarbamate, carbamic acid, organic salt

ABSTRACT: Usually, salts of dithiocarbamic acid derivatives of the general formula:

(where R_1 and R_2 are CH_3 or C_2H_5 ; Me is Na) are obtained by the reaction of carbon disulfide with a solution of an amine in the presence of alkalies. To improve the technological process and to increase the yield and quality of the final product, the process is carried out in dilute solutions of amines with a 5% excess of CS_2

Card 1/2

UNC: 547.496.2.07

KAFANOVA, V.V.

Studying the grayling of Lake Nizhneye Kulapash-bazhi
(Chulyshman River basin). Izv. Alt. otd. Geog. ob-ya SSSR
no.5:165 '65. (MIRA 18:12)

1. Tomskiy gosudarstvennyy universitet.

IOGANZEN, B.G.; GUNDRIZER, A.N.; KAFANOVA, V.V.; KRIVOSHECHKOV, G.M.

Lake Teletskoye as a unique body of water of the Altai and
an object deserving protection. Izv. Alt. otd. Geog. ob-va
SSSR no.5:216-217 '65. (MIRA 18:12)

1. Tomskiy gosudarstvennyy universitet.

LOBACHEVA, V.P.; SHCHERBININA, A.P.; KAFAROV, Z.Z.

Printing of white fabrics with substantive turquoise and lightfast
colors. Tekst.prom. 23 no.5:71-72 My '63. (MIRA 16:5)
(Textile printing)

KAFAROVA, D. D., Cand Med Sci -- (dias) "Blood loss in thyrotoxicosis in connection with treatment by iodine-131." Moscow, 1964. 8 pp; (Ministry of Public Health USSR, Central Inst of Advanced Training of Physicians); 200 copies; price not given; (KL, 21-60, 190)

KAFAROVA, R. Z.

"Analysis of Taste Reception by the Vascular Conditioned Reflex Method in Persons of Different Age Groups." Cand Biol Sci, Azerbaydzhan State U imeni S. M. Kirov, Min Higher Education USSR, Baku, 1955. (KL, No 11, Mar 55)

SO: Sum. No. 670, 29 Sep 55--Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

Abs Jour : Ref Zhur Biol., No 1, 1958, 2965

Author : A.I. Karayev, R.Z. Kafarova, Sh. Rustamova.

Inst **APPROVED FOR RELEASE: 08/10/2001** CIA-RDP86-00513R000619910004-1"

Title : The Influence of Irritation of Chemoceptors of the Liver and Mechanoceptors of the Rectum on the Phagocytic Activity of the Leukocytes.

Orig Pub : Byul. eksperim. biol. i meditsiny, 1956, 41, No 6, 58-61

Abstract : In rabbits the phagocyte activity of leukocytes (PhAL) in relation to a killed culture of staphylococcus aureus was determined, after which an irritation of the chemoceptors of the liver was produced by placing on the surface of the liver a solution of acetylcholine (1 : 1000). In the experimental animals a diminution of Ph A L took place, which lasted about one hour. This phenomenon was of a reflex character, because the placing of acetylcholine on a preliminary novocainized surface of the liver was not

Card 1/2

Card 2/2

KARAYEV, A.I.; KAFAROVA, R.Z.

Effect of stimulation of chemoreceptors of the parathyroid gland
on the calcium content of the blood. Uch.zap.AGU.Biol.ser. no.2:
49-56 '59. (MIRA 13:6)
-- (PARATHYROID GLAND--INNERVATION)
(CALCIUM IN THE BODY)